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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,610	08/15/2005	Nobuo Tomioka	P25921	8492
7055 7590 02/17/2009 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER				
WHALEY, PABLO S				
ART UNIT		PAPER NUMBER		
1631				
NOTIFICATION DATE		DELIVERY MODE		
02/17/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com

pto@gbpatent.com

Office Action Summary

Application No.

10/506,610

Applicant(s)

TOMIOKA ET AL.

Examiner

PABLO WHALEY

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-854)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date See Continuation Sheet

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09/15/2008 ; 05/13/2008 ; 11/16/2006; 8/29/2006; 12/06/2005.

DETAILED ACTION

Status of Claims

Claims 1-20 are pending.

Claims 1-20 are rejected.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on Japanese Application No. 2002-64994 filed in Japan on 11 March 2002. The certified copy was filed in the instant application on 09/10/2004. It is noted, however, that applicant has not filed an English translation of the Japanese application as required by 35 U.S.C. 119(b).

Drawings

Drawings filed 09/10/2004 have been accepted.

Information Disclosure Statement

The information disclosure statement filed 09/15/2008 has been considered in full.

The information disclosure statement filed 05/13/2008 has been considered in full.

The information disclosure statement filed 11/16/2006 has been considered in full.

The information disclosure statement filed 08/29/2006 has been considered in full.

The information disclosure statement filed 12/06/2005 has been considered in full.

Objections

Claim 1 is objected to because of the following informalities: Claim 1 (lines 3-4) is grammatically incorrect, and should recite "items selected from a group..." . Appropriate correction is required.

Claim rejections - 35 USC § 112, 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8 and 12-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3 are directed to a method of generating a molecule-function network. However, these claims only recites steps of a connect search using a database. As the claims do not result in the generation of a network or the output of any information resembling a molecule-function network, it is unclear in what way the instant claims achieve the purpose of the preamble.

Claims 6-8 provide for the use of the method of claim 1, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 12-20 provide for the use of the method of claims 2, 3, and 4, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-20 are rejected under 35 U.S.C. 101 because these claims are drawn to non-statutory subject matter. These claims are rejected for the following reasons.

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The claimed subject matter is directed to a process for generating a molecule-function network. A claimed process is statutory under 35 U.S.C. 101 if: (1) it is tied to a particular machine or apparatus of statutory subject matter under 35 U.S.C. §101 (i.e. a machine, manufacture, or composition of matter), or (2) it transforms a particular article into a different state or thing (In re Bilski, 88 USPQ2d 1385 Fed. Cir. 2008; In re Comiskey, Fed. Cir., No. 2006-1286).

Regarding the required tie to a particular machine or apparatus, the claimed subject matter is not limited to a particular apparatus or machine. For example, the claimed subject matter requires steps for a connect search using a database, filtering data, scoring a network generated by a connect search using a database, and preparing a database. However, a database is not interpreted to be a physical device or machine and therefore the claimed steps do not require a specific device. The claimed subject matter does not require any functional software and hardware limitations such that the claimed method reads on a data structure. To qualify as a statutory process, the claims should require use of a machine within the steps of the claimed subject matter or require transformation of an article to a different state or thing. Insignificant data gathering or post-solution activity in the claimed subject matter will not be considered sufficient to convert a process that otherwise recites only mental steps into statutory subject matter. Preamble limitations that require the claimed process to comprise machine implemented steps will not be considered sufficient to convert a process that otherwise recites only mental steps into statutory subject matter. The applicants are cautioned against introduction of new matter in an amendment.

Regarding the transformation test, the claimed subject matter does not recite a physical transformation of matter. For example, the claimed subject matter is directed to the storage, analysis, and filtering of data, and the use of a database. Therefore the claimed subject matter does not require any physical assay to perform these steps [See In re Grams, 12 USPQ2d 1824

(Fed Cir. 1989)]. This rejection could be overcome by amendment of the claims to recite a step wherein an article is reduced to a different state or thing (e.g. physical assay), or a step wherein data representing a physical object or substance that is obtained by a specific physical process is sufficiently manipulated or changed (e.g., raw data into a particular visual depiction of a physical object on a display) [See *In re Abele*, 684, F.2d at 908-909, CCPA, 1982]. The applicants are cautioned against introduction of new matter in an amendment.

Claims 1-20 are rejected under 35 U.S.C. 101 because these claims are drawn to non-statutory subject matter. These claims are rejected for the following reasons.

For a process that comprises an abstract idea to be statutory, it must comprise a practical application of the abstract idea. Claimed subject matter may require a practical application by claiming, or requiring use of, a machine, or by requiring a physical transformation of an article to a different state or thing [In *Re Bilski* (88 USPQ2d 1385 Fed. Cir. 2008)]. Even if claimed subject matter claims, or requires use of, a machine, the claimed subject matter may not require a practical application. However, one indication that claimed subject matter requires a practical application is an explicit requirement of a useful concrete, and tangible result [In *re Alappat* (31 USPQ2d 1545 Fed. Cir. 1994)]. As a result, for an apparatus, program, or system carrying out a process that comprises an abstract idea to be statutory, the machine, program, or system must also provide a concrete, tangible, and useful result.

In determining if the claimed subject matter produces a useful, concrete, and tangible result, the Examiner must determine each standard individually. For a claim to be “useful” the claim must produce a result that is specific and substantial. For a claim to be “concrete” the process must have a result that is reproducible. For a claim to be “tangible” the process must produce a real world result. Furthermore, the claim must be limited only to statutory embodiments.

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In the instant case, claims 1-20 result in steps drawn to a connect search using a database, filtering data, selecting data, scoring a molecule-function network, and preparing a drug molecule information database. This limitation does not require production of a tangible result in a form that is understandable to the user of the process or apparatus. Therefore the instant claims do not require a practical application, since one indication that the claimed subject matter requires a practical application is an explicit requirement of a useful concrete, and tangible result. This rejection could be overcome by amendment of the claims to recite that a result of the process is outputted to a display, outputted to a user, outputted to a physical storage device, or outputted in a graphical format, or outputted in a user readable format, or by including a result that is a physical transformation. The applicants are cautioned against introduction of new matter in an amendment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Winslow et al. (1999; IDS filed 05/13/2008).

Winslow teaches a method and database for generating a data structure [Abstract]. The database contains biological information and is used to generate a data structure that is associated hierarchical information related to cellular function [Abstract]. Winslow teaches an interactive interface searching using a database [Abstract, p.5, ¶2]. Winslow teaches hierarchical descriptions for connecting data a plurality of different attributes, such as biological and structural state [p.12-

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13]. The methods generates attribute lists and provides relationships between data items that include history and initial conditions [p.14, p.32, Table]. The database uses information on gene sequence similarity and homology [p.4], which inherently teaches biomolecule pair information. The method uses computer implemented tools for analyzing genetic processes and linking this information with disease [p.4, p.7, ¶2, p.12, ¶3]. Therefore claims 1-3 are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winslow et al. (1999; IDS filed 05/13/2008), in view of Itai et al. (1999; IDS filed 05/13/2008).

Winslow teaches a method and database for generating a data structure [Abstract]. The database contains biological information and is used to generate a data structure that is associated hierarchical information related to cellular function [Abstract]. Winslow also provides an interactive interface for viewing information, linking attributes, and searching the database [Abstract, p.5, ¶2]. Hierarchical descriptions for connecting data a plurality of different attributes,

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such as biological and structural state [p.12-13]. The method generates attribute lists and provides relationships between data items that include history and initial conditions [p.14, p.32, Table]. The method uses computer implemented tools for analyzing genetic processes and linking this information to health and disease [p.4, p.7, ¶2, p.12, ¶3]. The method allows for the analysis of protein data and can be linked to existing genetic, protein, and structural databases [p.3, p.12]. The method can numerically screen compounds for functional effects [p.7, ¶2]. The method can be used to identify new drug targets and drug screening [Abstract].

Winslow does not teach filtering data by setting a condition to data items including relational code or directionality of biomolecules, as in claims 4-6.

Winslow does not teach scoring a network based on one or more data items using relational code or directionality of biomolecules, as in claims 9-11.

Itai teaches a method for scoring biological information in a database [0019]. In particular, binary codes is used to score protein information. Itai also teaches methods for adding or deleting information based on their scores [0019-0020]. This technique is beneficial for assigning importance to effectively determine biological function [0019].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Winslow by filtering data items using a relational code, as in claims 4-6, since Itai teaches a method for filtering protein information based on binary codes that represent their importance [0019-0020], and since Winslow shows their method use of proteins and numerically screening [p.3, p.7, ¶2]. The motivation would have been to apply known techniques for reducing the amount of data being analyzed, as suggested by Itai [0019].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Winslow by scoring a network based on one or more data items using relational code, as in claims 9-11, since Itai teaches a method for scoring protein information using binary codes [0019-0020], and since Winslow shows their method allows for protein data

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and can be linked to existing protein databases [p.3, p.12]. The motivation would have been to apply known techniques for assigning importance to protein data for determining biological function, as suggested by Itai [0019].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Whaley whose telephone number is (571)272-4425. The examiner can normally be reached on 9:30am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached at 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Pablo S. Whaley/

Patent Examiner

Art Unit 1631

/John S. Brusca/

Primary Examiner, Art Unit 1631